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# CATALOGUE

OF THE

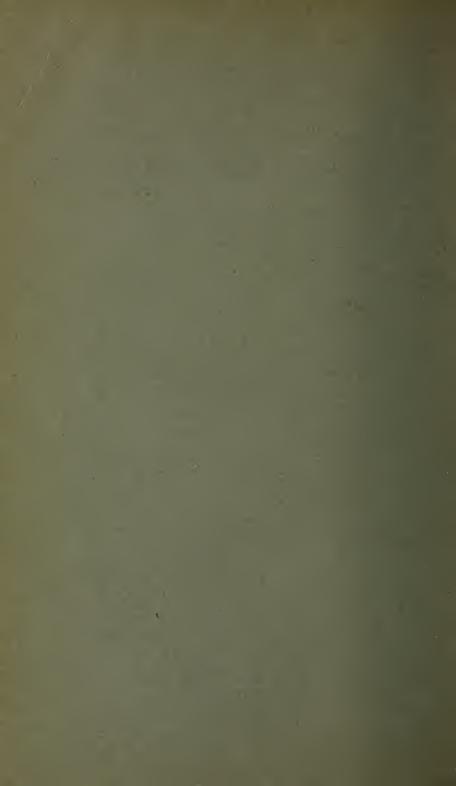
# State College of Agriculture

AND THE

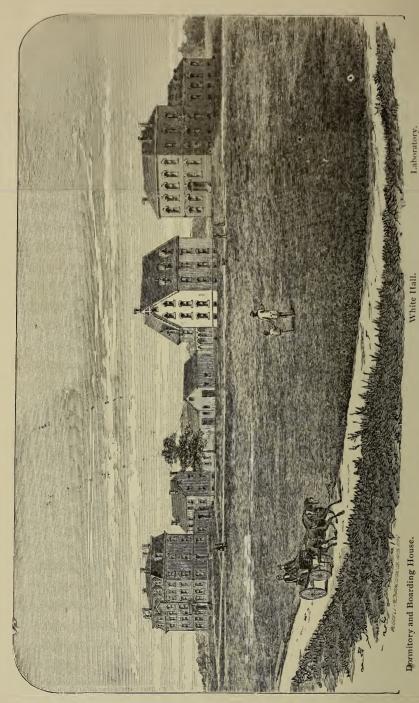
MECHANIC ARTS.

ORONO, MAINE, 1884-5.









PRINCIPAL BUILDINGS OF THE STATE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS, ORONO.

# CATALOGUE

OF THE

# State College of Agriculture

AND THE

# MECHANIC ARTS.



ORONO, MAINE, 1884-5.

AUGUSTA: SPRAGUE & SON, PRINTERS TO THE STATE. 1885.

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Secretary of Maine Board of Agriculture, ex-officio.

## TREASURER:

J. FRED WEBSTER, ORONO.

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Professor of Modern Languages, Logic and Political Economy,
and Librarian.

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Professor of Agriculture.

CHARLES H. BENJAMIN, M. E.,

Professor of Mechanical Engineering, and Registrar.

Lieut. EDGAR W. HOWE, 17th Infantry, U. S. A., Professor of Military Science and Tactics.

WALTER FLINT, B. M. E., Instructor in Vise-work and Forge-work.

GILBERT M. GOWELL,

Farm Superintendent.

JESSE G. JOHNSON,

Steward.

# STUDENTS.

### POST GRADUATE.

Fernald, Hattie Converse,

Orono.

### SENIOR CLASS.

Chamberlain, George Walter,
Dole, Ashar,
Dunton, Frank Orion Jessie Smith,
Fernald, Henry T. L.,
Goodridge, Elmer Orlando,
Hanscom, George Loring,
Hart, James Norris,

Hull, Frank Eugene, Keyes, Austin Herbert, Manter, Frank Ellsworth, Merritt, Elmer Ellsworth,

Morey, William, Jr., Moulton, Joseph Perkins, Paine, Leonard Gregory, Pennell, Elmer Ellsworth,

Riggs, Louis Warner,
Russell, Fremont Lincoln,

W. Lebanon.

Brewer.

Orono.

Orono.

Milo.
Orono.

Willimantic.

Warren.

Orland.

Milo.

Houlton.

Hampden.

Sanford.

Bangor.

Saccarappa.

No. Georgetown.

No. Fayette.

### JUNIOR CLASS.

Pembroke. Allan, Bert John, Ayer, Josiah Murch, Freedom. Rockland. Barker, George Greenleaf, Black, George Fuller, Palermo. Carmel. Blagden, John Decker, French, Heywood Sanford, Bangor. Orono. Graves, Edwin Dwight, Bangor. Jones, Ralph Kneeland, Jr., Norridgewock. Leavitt, Hannah Ellis, Lenfest, Elmer, Bradley. Lockwood, James Frederic, Brewer. Merriam, Charles Herbert, Houlton. Merriam, Willis Henry, Houlton. Page, Arthur Dean, Orono. Ray, Irving Burton, Harrington. Fort Kent. Sears, Cassius Almon, Twombly, Sydney Smith, Enfield.

### SOPHOMORE CLASS.

Brick, Francis Stephen, Burleigh, John Henry, Cilley, Luis Vernet Prince, Clark, Bert Elmer, Clark, Irving Mason, Colby, David Wilder, Coffin, Edward Voranus, Harris, William John, Hicks, Alice Albur, Houghton, Austin Dinsmore, Kilpatrick, Fred Hudson, Lazell, James Draper, Lincoln, Harry Foster, Mason, Charles Avers, McNally, Henry Allen, Merrill, Fenton, Nowland, James Martin, Ruth, Alfred Smith, Saunders, Addison Roberts, Stevens, Charles Hildreth, Trask, Frank Ellsworth, Vose, Charles Thatcher, Webb, Howard Scott,

Williams, John Sumner,

Vassalboro'. Rockland. West Tremont. Bethel. Skowhegan. Harrington. Groton, Mass. Hampden. Ft. Fairfield. Bangor. Rockland. Dennysville. Bethel. Ft. Fairfield. Orono. Ashland. Linneus. Hanover. Ft. Fairfield Bethel. Milltown, N. B. Skowhegan.

Guilford.

Biddeford.

### FRESHMAN CLASS.

Andrews, Hiram Bertrand, Bachelder, George Stetson, Blanchard, Charles DeWitt, Boardman, John Russell, Buker, Albion Henry, Butler, Harry, Chamberlain, James Kent, Drew, Fred Thayer, Eastman, Fred Langdon, Gould, Charles Benjamin, Hagerthy, George Ruthvin, Hancock, Willie Jerome, Hatch, John Wood, Howes, Claude Lorraine, Lord, Thomas George, Leavitt, Cora Annie, Leavitt; Nellie Louise, Marsh, Ralph Hemenway, Miller, Seymore Farrington, Page, Frank Jackson, Rogers, Seymour Everett, Rolfe, Charles Collamore, Seabury, George Edwin, Smith, Frank Adelbert, Sturtevant, Charles Fremont,

True, Joseph Sumner,

Cape Elizabeth.
Exeter Mills.
Oldtown.
Augusta.
Rockland.
Hampden.
Bangor.
Orono.
Ft. Fairfield.
Orono.
South Hancock.
Saco.
Presque Isle.
Boston, Mass.
Skowhegan.

Norridgewock.
Norridgewock.
Bradley.
Burlington.
Orono.
Stetson.
Presque Isle.
Ft. Fairfield.
East Corinth.
Bowdoinham.
New Gloucester.

### SPECIAL COURSE.

Benjamin, Alice,	Oakland.
Dority, Jennie Lillian,	Wells.
Grosvenor, Temple,	Canterbury, N. B.
Libby, Willard Alton,	South Auburn.
Libby, Charles Leon,	South Auburn.
Lull, George Frederic,	West Great Works.
Sherburn, William Percival,	Dover.

### SUMMARY.

Post Graduate,	1	Sophomores,	24
Seniors,	17	Freshmen,	26
Juniors,	17	Special,	7
		Total,	92

### PRIZES FOR 1884.

Coburn Prize, for best Junior Essay, awarded to F. E. Manter of Milo.

Coburn Prize, for best Sophomore Declamation, awarded to H. S. French of Bangor.

### MILITARY DEPARTMENT.

### COBURN CADETS.

Commandant—2d Lieut. Edgar W. Howe, 17th U. S. Infantry.

Captain—H. L. FERNALD.

Lieutenants—L. G. Paine, L. W. RIGGS, E. E. MERRITT, E. O. GOODRIDGE and J. P. MOULTON.

First Sergeant-C. A. Sears.

Sergeants—I. B. RAY, R. K. JONES, A. D. PAGE, G. F. BLACK and B. J. Allan.

Corporals—F. E. Trask, E. V. Coffin, B. E. Clark, L. V. P. Cilley, C. T. Vose and A. R. Saunders.

### DESIGN OF THE INSTITUTION.

It is the design of the Maine State College of Agriculture and the Mechanic Arts to give the young men of the State, who may desire it, at a moderate cost, the advantages of a thorough, liberal and practical education. It proposes to do this by means of the most approved methods of instruction, by giving to every young man who pursues a course of study an opportunity practically to apply the lessons he learns in the class-room, and by furnishing him facilities for defraying a part of his expenses by his own labor.

By the act of Congress granting public lands for the endowment and maintenance of such colleges, it is provided that the leading object of such an institution shall be, "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and the Mechanic Arts."

While the courses of study fully meet this requisition, and are especially adapted to prepare the student for agricultural and mechanical pursuits, it is designed that they shall be also sufficiently comprehensive, and of such a character, as to secure to the student the discipline of mind and practical experience necessary for entering upon other callings or professions.

### CONDITIONS OF ADMISSION.

Candidates for admission to the Freshman Class must be not less than fifteen years of age, and must pass a satisfactory examination in Arithmetic, Geography, English Grammar, (especial attention should be given to Orthography, Punctuation and Capitals,) History of the United States, Algebra as far as Quadratic Equations, and five books in Geometry.

Although the knowledge of Latin is not required as a condition of admission, yet the study of that language is earnestly recommended to all who intend to enter this Institution.

Candidates for advanced standing must sustain a satisfactory examination in the preparatory branches, and in all the studies previously pursued by the class they propose to enter.

Satisfactory testimonials of good moral character and industrious habits will be rigidly exacted. They should be presented on the day of examination.

The day after Commencement, which is the last Wednesday of June, and the day of the beginning of the first term, are the appointed times for the examination of candidates at the College.

Arrangements have been made by which applicants accommodated by the plan may pass examination for admission without incurring the expense of coming to Orono. The gentlemen named below have been appointed examiners for the sections of the State in which they severally reside:

C. P. Allen, B. S.,
H. M. Estabrooke, B. S.,
E. S. Danforth, B. S.,
S. W. Gould, B. S.,
Principal F. E. Parlin,

O. C. Farrington, B. S., S. K. Hitchings, B. S., Henry K. White, A. M., Wm. W. Allen, A. B., Charles A. Black, A. M., Rev. W. R. Cross, Henry W. Johnson, A. B., I. C. Phillips, A. B., Hon. N. A. Luce, Presque Isle. Gorham.

Skowhegan.

Greeley Institute, Cumberland.

Cape Elizabeth.

Biddeford.
Newcastle.
Dexter.

East Machias.
Milltown, N. B.

Bethel.
Wilton.
Augusta.

Examiners will indicate by postal card to parties applying, the time and special place of examination. Arrangements have also been made with the Seminary at Bucksport, by which students from that institution may be admitted to the College on certificate of qualification by the Principal, Rev. A. F. Chase.

All candidates, wherever they may arrange to be examined, should make early application to the President of the College. Applications will be recorded and regarded in the order of their reception.

### COURSES OF INSTRUCTION.

Five full courses are provided, viz: A course in Agriculture, in Civil Engineering, in Mechanical Engineering, in Chemistry, and in Science and Literature.

The studies of the several courses are essentially common for the first year, and are valuable not only in themselves, but also as furnishing a necessary basis for the more technical studies and the practical instruction of the succeeding years.

Physical Geography, taught in the first term of the Freshman year, serves as a suitable introduction to Geology which is taken up later in each of the courses. Physiology serves as an introduction to Comparative Anatomy, and Algebra, Geometry and Trigonometry are needful preliminaries to the higher mathematics and the practical applications required in Surveying, Engineering proper, and Astronomy. Botany, Chemistry and Physics are highly important branches, common to all the assigned courses, and hence taken by all the students who are candidates for degrees.

Rhetoric, French and English Literature form the early part of the line of studies which later includes German, Logic, History of Civilization, U. S. Constitution, Political Economy, and Mental and Moral Science, branches, several of which relate not more to literary culture than to social and civil relations, and to the proper preparation for the rights and duties of citizenship.

Composition and Declamation are regular exercises in all the courses throughout the four years. For the characteristic features of each course reference is made to the explanatory statements following the several schemes of study.

### SPECIAL COURSES.

Students may be received for less time than that required for a full course, and they may select from the studies of any class such branches as they are qualified to pursue successfully. Students in Special Courses are not entitled to degrees, but may receive certificates of proficiency.

### DEGREES.

The full course in Civil Engineering entitles to the Degree of Bachelor of Civil Engineering; the full course in Mechanical Engineering, to the Degree of Bachelor of Mechanical Engineering; the full course in Agriculture, Chemistry, or Science and Literature, to the Degree of Bachelor of Science.

Three years after graduation, on presentation of a satisfactory thesis with the necessary drawing, and proof of professional work or study, the Bachelors of Civil Engineering may receive the Degree of Civil Engineer; the Bachelors of Mechanical Engineering, the Degree of Mechanical Engineer; the Bachelors of Science, the Degree of Master of Science.

### COURSE IN AGRICULTURE.

### FIRST YEAR.

First Term.

Physical Geography.

Physiology.

Algebra.

P. M. Labor on Farm.

Second Term.

Rhetoric and Botany.

Algebra and Geometry.

French.

P. M. Book-Keeping and Labor on

Farm.

### SECOND YEAR.

First Term.

Botany.

General Chemistry.

French.

Trigonometry.

P. M. Free-hand Drawing.

Second Term.

Descriptive Astronomy and Surveying or (L) History of England.

Physics.

Qualitative Chemistry.

P. M. Mechanical Drawing.

Field Work and Forge Work.

### THIRD YEAR.

First Term.

Agricultural Engineering, including Farm Implements, Farm Drainage and Mechanical Cultivation of the Soil, Physics.

Agricultural Chemistry.

English and American Literature.

P. M. Laboratory Work or \*Analysis of English Authors and Translations from the French.

Second Term.

Agricultural Chemistry, Landscape Gardening, Horticulture and Arboriculture.

Zoology and Entomology.

German.

P. M. Laboratory Work and Experimental Farming or \*Analysis of English Authors.

### FOURTH YEAR.

First Term.

Second Term.

Stock Breeding and Science.

Comparative Anatomy. History of Civilization.

Logic.

Experimental Farming and Agricultural Botany or \*Transla-

tions from German.

Veterinary Cultivation of Cereals, Care and Feeding of Animals, Dairy Farming and Sheep Husbandry.

Mineralogy and Geology.

U. S. Constitution and Political

Economy.

Mental and Moral Science.

<sup>\*</sup> To be taken in Course in Science and Literature in place of study preceding.

### EXPLANATORY STATEMENTS.

This course is designed to fit young men to follow Agriculture as a profession, with success, as well as to prepare them for the intelligent performance of the duties of citizenship.

To this end, the curriculum of studies is largely scientific and technical, not omitting, however, those branches that have been referred to as pertaining to social and civil relations.

The instruction in Agriculture is given largely by lectures, and embraces subjects of great practical importance to the farmer, which are briefly explained under the following heads:

Agricultural Engineering. Combined with recitations in mechanics from a text-book, lectures are given on the principles of construction and use of farm implements, illustrated by charts to the extent possible, on the construction of roads, culverts and masonry, and on soil physics, or the relations of the soil to heat and moisture, the mechanical conditions of the soil best adapted to plant growth, and the objects to be gained by cultivation.

Agricultural Chemistry.—Under this head are considered the various methods of retaining and increasing the fertility of the soil, the sources, composition and methods of valuation of commercial and farm manures, together with the principles governing their treatment and application, the composition of cattle foods, their changes and uses in the animal system, and the value and economic use of the various kinds of fodders.

Landscape Gardening.—The object of this study is to furnish correct ideas of the manner of laying out and beautifying grounds. This subject is followed by lectures on Horticulture and Arboriculture.

Cultivation of Cereals.—Lectures are given upon the best methods of cultivating the principal farm crops.

Dairy Farming.—This embraces the chemical and physical properties of milk, and the principles and practical operations that underlie its production and manufacture into butter and cheese.

Sheep Husbandry.—The characteristics and comparative merits of our different breeds of sheep are discussed, also their adaptability to different conditions and uses.

Botany. — Following recitations and practical work in Botany, lectures are given upon fungi injurious to the farmer.

Chemistry.—One term is devoted to General Chemistry, two terms to Agricultural Chemistry, one-half term to Organic Chemistry, and

the afternoons of several terms are devoted to laboratory practice, including analyses of farm products.

Zoölogy and Entomology.—In Zoölogy, the larger groups of the animal kingdom are taken up and described in lectures which are illustrated by means of diagrams, models, or the objects themselves, and the students are required to make critical studies of typical animals of each group. Such laboratory practice is regarded an indispensable training for the more advanced study of the higher animals, and also forms the basis of the study of Historical Geology.

The studies in Entomology are conducted in a similar manner. After a general review of the orders has been given, illustrated by such common insects as are familiar to all, the beneficial and injurious are taken up more in detail, their round of life described, together with the injuries they do to the products of the farmer, the gardener and the fruit-raiser, as well as to our forests and building materials, and the best known means of keeping them in check. For the purpose of making the instruction as practical and impressive as may be, many of the injurious insects are carried through their transformations in the class-room, where each student can note the various changes from day to day, and learn to recognize these insect enemies in any stage of their existence; and each member of the class is required to devote some time in field-collecting, and in observing the habits and work of insects in nature.

The subject of Bee-Keeping is taken up quite at length; the different kinds of bees in a swarm, their habits, anatomy, and the mode of collecting the different products are all described and illustrated by means of elaborate models, while artificial swarming, the mode of hybridizing a swarm, and the advantages of the same, with the most approved methods now in use for the care and management of bees, are also fully described.

Comparative Anatomy.—Under Comparative Anatomy are taken up the anatomy and physiology of our domestic animals, together with a brief outline of our wild animals, so far as time permits. This is followed by a course of illustrated lectures on Stock Breeding and Veterinary Science.

Mineralogy and Geology.—A preliminary course of lectures is given on Mineralogy, followed by laboratory practice in the determination of minerals, and in Lithology, special attention being called to gypsum, limestone, and such other minerals as are of direct importance to the students of Agriculture.

The instruction in Geology is by means of illustrated lectures and excursions, critical attention being given to the origin and formation of soils.

Law.—A course of lectures is given to the Senior Class on International and Rural Law.

Throughout the course, the endeavor is made to inculcate established principles in agricultural science, and to illustrate and enforce them to the full extent admitted by the appliances of the laboratory and the farm. So far as possible, students are associated with whatever experimental work is carried on, that they may be better fitted to continue such work in after life.

Those who complete this course receive instruction also in Mathematics, French, German, English Literature, Logic, United States Constitution, Political Economy, and Mental and Moral Philosophy, and on presenting satisfactory theses upon some agricultural topic, are entitled to the degree of Bachelor of Science.

The Course in Science and Literature includes French and German, the general, mathematical, and most of the scientific studies of the agricultural course. Instead of certain branches quite purely technical in the latter course, History, and English and American Literature are substituted.

In the special laws of the State, passed in 1872, it is provided that young ladies "who possess suitable qualifications for admission to the several classes may be admitted as students in the college."

In arranging the course in Science and Literature, reference has been had to this enactment. From this course, however, young men who desire it are not excluded, as, on the other hand, young ladies are not excluded from any of the other courses.

### COURSE IN CIVIL ENGINEERING.

### FIRST YEAR.

First Term.

Second Term.

Algebra. Physical Geography. Algebra and Geometry. Rhetoric and Botany.

Physiology.

French.

P. M. Labor on Farm.

P. M. Book-Keeping and Labor on Farm.

### SECOND YEAR.

First Term.

Second Term.

Trigonometry.

Descriptive Geometry.

General Chemistry.

Descriptive Astronomy and Surveying.

French. P. M. Free-hand Drawing.

Physics.

Mechanical Drawing.

P. M. Mechanical Drawing and Field Work.

### THIRD YEAR.

First Term.

Second Term.

Henck's Field Book. Analytical Geometry. Physics.

Mechanics. Calculus. German.

German. P.M. Field Work and Drawing. P. M. Isometric and Cabinet Projection and Perspective.

### FOURTH YEAR.

First Term.

Second Term.

Civil Engineering.

Civil Engineering, Designs and Spec-

Stereotomy.

ifications. Mineralogy and Geology.

Practical Astronomy. Logic.

Zoology.

P.M. Topography and R. R. Work. U. S. Constitution and Political Economy.

P. M. Analytical Chemistry, Designing and Thesis Work.

### EXPLANATORY STATEMENTS.

The object of this course is to give the student a thorough knowledge of Higher Mathematics, Mechanics, Astronomy and Drawing, and, at the same time, a thorough drill in the use and care of the ordinary engineering instruments and in the application of mathematical principles and rules, so that the graduates can at once be made useful in engineering work and be fitted, after a limited amount of experience in the field, to fill positions of importance and trust. The course is also arranged so as to afford, so far as can be, the education required to prepare the graduate for a responsible position among men, as well as among engineers.

In this course the work is identical with that of the other courses during the first year. During the fall term of the Sophomore year, students in this course work two hours each afternoon, in the drawing room, on free-hand and mechanical drawing. In the last term of this year, the subject of land surveying is taken up. The first eight weeks are devoted to tinting, shading, etc., in water colors, while the remaining twelve weeks are given to practical surveying. Besides an hour's recitation each day, the class is engaged two hours, either in the field or drawing room, becoming familiar with the use and care of instruments, putting into practice the problems found in the text-book, and making actual surveys.

In the first term of the Junior year, Henck's Field Book is used as a text-book, from which the student obtains methods of running railroad curves, putting in switches and turnouts, setting slope-stakes, and the calculation of earthwork. This is supplemented with examples worked by the student, and lectures on levelling, pre-liminary and final surveys and on the resistance to trains offered by grades and curves, together with the theory and construction of country roads, streets and pavements. These methods of the text-book, so far as possible, are applied in the field and the drawing room, each student in the course being required to work two hours, either in the field or drawing room, every day.

The subject of Applied Mechanics is taken up the last term of this year, in which the students receive a thorough training in the principles underlying construction, illustrated as far as possible by practical examples, in which these principles are applied. During this term, each student in the class works two hours each day in the drawing room, where isometric, cabinet and perspective projection are taught by means of lectures and problems drawn by the students.

During the Senior year, Rankine's Civil Engineering is the text-book employed, though other works are used for reference. Besides these, much material is given in the form of lectures and notes on the blackboard.

In the first term of this year the principles of the strength of material are taken up, supplemented by information as to durability, preservation and fitness for special purposes. The principles of hydraulics, as applied in engineering, the theories of ties, struts, beams, foundations, retaining walls and arches, are fully treated.

Stone cutting is taken up this term, by lectures and practical problems, each student being required to make a complete set of working drawings of the most common forms of masonry arches.

Six weeks of this term are devoted to sanitary engineering; especial attention being given to ventilation, heating, purity of water supply and the proper drainage of houses and towns.

Also the subjects of topographical and railroad surveying are taken up this term and illustrated by a topographical survey of a portion of the college farm, and by the preliminary and final surveys for a railroad extending from the College grounds to some point on the E. & N. A. railroad, together with the drawings, calculations of earthwork and estimate of cost of building and equipping.

The first part of the last term of this year is devoted to the theory of roof and bridge trusses, lectures on the locomotive engine and a short course in Analytical Chemistry, while the greater part is given to the application of the principles already learned, to the designing and calculation of various kinds of engineering structures, and to making out estimates and specifications.

This, together with the preparation of a satisfactory thesis, completes the work in the course in Civil Engineering.

### MINERALOGY AND GEOLOGY.

Mineralogy is taught by an introductory course of lectures, followed by laboratory practice in the determination of minerals and rocks, especial attention being given to their value for building purposes. This is immediately followed by a course of lectures in Geology, together with excursions for the purpose of studying the

rocks in situ, and also superficial deposits. Critical examinations are made in various railroad cuts, of the hardness, slaty structure, jointed structure, etc., as bearing upon the cost of excavation.

### ASTRONOMY.

In the first part of the spring term, Descriptive Astronomy is taken by the students of the Sophomore Class, and Practical Astronomy during the larger part of the first term, Senior year.

The course in Astronomy is designed to enable students to determine with accuracy geographical positions. The principal instruments employed are chronometer, sextant, transit, and for work of precision, the Repsold vertical circle, an instrument made in Hamburg, Germany, in 1874, for this Institution. Practical instruction is given in the use of these instruments, and in the most approved methods of reducing observations for the determination of latitude and longitude.

### DEGREES.

Students in this department secure the degree of Bachelor of Civil•Engineering on graduating, with the full degree of Civil Engineer three years after, on presentation of a satisfactory thesis, with proof of professional work or study.

### COURSE IN MECHANICAL ENGINEERING.

### FIRST YEAR.

First Term.

Second Term.

Algebra. Physiology. Algebra and Geometry. Rhetoric and Botany. French.

Physical Geography. P. M. Labor on Farm.

P. M. Book-Keeping and Labor on Farm.

### SECOND YEAR.

First Term.

Second Term.

Trigonometry. French.

Descriptive Geometry. Descriptive Astronomy.

General Chemistry.

Physics.

P. M. Free-Hand Drawing and P. M. Carpentry.

Mechanical Drawing and Forge Work.

### THIRD YEAR.

First Term.

Second Term.

Kinematics. Analytical Geometry. Vise Work, Physics. P. M. Machine Drawing. Mechanics and Machine Design. Calculus.

Link and Valve Motions.

P. M. Isometric and Cabinet Projection and Machine Drawing.

### FOURTH YEAR.

First Term.

Second Term.

Steam Engineering. Practical Astronomy. Logic.

Steam Engineering. Hydraulic Engineering.

P. M. Machine Drawing and U. S. Constitution and Political Economy.

Designing.

P. M. Machine Drawing, Designing and Thesis Work.

### EXPLANATORY STATEMENTS.

It is the design of this course to give such a knowledge of Mathematics, Mechanics, Principles of Mechanism, Drawing and Manual Art as shall enable the student successfully to enter practical life as an engineer, with the same thorough education in subjects required to fit him for the general duties of life as is afforded by the other courses.

The first two years' work is identical with that of the students in Civil Engineering, except that carpentry and forge work are taken the second year in place of part of the drawing. In the Junior year, the first term is devoted to the geometry of machinery, showing the students how different motions may be obtained independently of the power required. Special attention is here given to the subject of gearing, and a full set of problems worked out, illustrating cases commonly occurring in practice. In the second term of this year the subject of the geometry of machinery is continued by lectures on other methods of transmitting motion, as by belts, cams, couplings, and links. Considerable time is given to the study and designing of the various valve and link motions used on the steam engine. During the same term instruction is given in mechanics and the laws of the strength of materials, the student being required to design machine details in accordance with those laws.

The first part of the first term, Senior year, is employed in studying the laws of the expansion of steam, and their influence upon the construction of steam engines and boilers, the subject being illustrated by experiments on the shop engine, with the aid of an indicator. During the remainder of the term, the students are engaged in designing engines and other machines, and in making detail drawings of the same, such as would be required to work from in the shop.

During the last term, Senior year, the study of steam engineering is continued in its application to compound engines, and the subject of hydraulic engineering is taken up briefly, by lectures on the storage of water for power and the theory and construction of modern water wheels.

### TEXT-BOOKS AND BOOKS OF REFERENCE.

Rankine,	Machinery and Mill Work.	Goodeve,		Steam	n Engine.
Weisbach,	Mechanics of Engineering.	Marks,	Proportions of	f Steam	n Engine.
MacCord,	Kinematics.	Trowbridge,		Steam	n Boilers.
MacCord,	Slide Valve.	Zenner,	Valve ai	nd Link	Motions.
Van Buren,	Strength of Machinery.	Auchineless,	"	"	"
Knight,	Mechanical Dictionary.	Clark,			Manual.

### SHOP WORK.

There are now three shops equipped according to the Russian system, and work in these is required of all students in this course. The first term of the Sophomore year, two hours of each day are devoted to work in carpentry, special attention being given to accuracy of workmanship.

During the second term of the same year, the student receives instruction in forge work, including the welding and tempering of steel. A course in vise work during the first term of the Junior year, gives the student practice in the various methods of shaping and fitting metals by the use of the chisel, hack-saw and file. During their second term, the Junior students in this course take turns in running the shop engine, and are taught the rules of safety and economy in this branch of engineering.

### DRAWING.

The work in drawing commences with a course in Free-Hand and Elementary Mechanical Drawing, extending through the Sophomore year.

The first term of the Junior year, the student spends the time allotted to drawing in working out practical problems on the construction of gear teeth, cams, etc., and in elementary practice in line-shading and tinting.

The second term of this year is devoted to isometric projection, and the making of finished drawings in ink and in water colors. In the first term of the Senior year, the student prepares an original design of some machine, makes working drawings of its details on tracing cloth, and finally prepares copies by the blue print process. The afternoon work of the spring term consists of making calculations for designs of engines and boilers, the construction of the necessary working drawings, and making thesis drawings.

The remarks under Course in Civil Engineering, with regard to Astronomy, apply also to this course, and to them reference is made.

Theses are required of all students as a condition of graduation, and must be on some subject directly connected with Mechanical Engineering.

Students in this course receive the degree of Bachelor of Mechanical Engineering upon graduation, with full degree of Machanical Engineer three years afterwards upon presentation of a satisfactory thesis and proof of professional work or study.

### COURSE IN CHEMISTRY.

### FIRST YAER.

First Term.

Second Term.

Physical Geography. Physiology. Algebra.

Rhetoric and Botany. Algebra and Geometry.

French.

P. M. Labor on Farm.

P. M. Book-Keeping and Labor on Farm.

### SECOND YEAR.

First Term.

Second Term.

General Chemistry.

Qualitative Chemistry.

Botany.

Physics.

French. Trigonometry. Descrip. Astronomy and Surveying. P. M. Mechanical Drawing and

P. M. Free-Hand Drawing.

Field Work.

### THIRD YEAR.

First Term.

Second Term.

Chemistry.

Chemistry.

Physics. German. Zoology and Entomology.

German.

Chemistry.

Economy.

English and American Literature. P. M. Laboratory Work.

P. M. Laboratory Work.

### FOURTH YEAR.

First Term.

Second Term.

Chemistry.

Comparative Anatomy.

Mineralogy and Geology.

History of Civilization.

U. S. Constitution and Political

Logic.

P. M. Laboratory Work.

P. M. Laboratory Work.

### EXPLANATORY STATEMENTS.

This course aims to supply a want felt, by students who wish to enter certain industries in which a somewhat extensive knowledge of Chemistry is important. The first two years are mainly like those of the other courses; Qualitative Analysis being, however, obligatory for these students in the second term of the Sophomore year.

During the Junior year, daily recitations are held in advanced Inorganic Chemistry. In the Senior year, advanced Organic Chemistry is taken up. The afternoons are devoted to Quantitative Chemical Analysis by the Junior and Senior students of the course. The work consists of the most useful gravimetric and volumetric methods, beginning with the simple estimations, which are followed by more complex analyses of alloys, minerals, fertilizers, farm products, &c. A short course in the assay of gold and silver is also given.

The class-room text-books used by this department are: Roscoe's Lessons in Elementary Chemistry and Naquet's Principes de Chimie. In the Laboratory are used: Craft's Qualitative Chemical Analysis, Fresenius' Quantitative Chemical Analysis, Caldwell's Agricultural Chemical Analysis. Wohler's Mineral Analysis, J. A. Wanklyn's Milk Analysis, Flint's Examination of Urine, and Rickett's Notes on Assaying.

Some valuable books of reference are found in the library.

Students taking qualitative analysis must furnish a deposit of at least five dollars when they begin; those taking quantitative analysis are required to deposit at least seven dollars. Students taking the Course in Chemistry or an extended course in quantitative analysis are expected to provide themselves with a small platinum crucible.

The students, after passing all the required examinations and presenting satisfactory theses upon some chemical subject, graduate with the degree of Bachelor of Science.

Post graduate and special students can make arrangements with the Professor of Chemistry for an advanced or special course of laboratory work and recitations.

# TABLE OF HOURS—FIRST TERM.

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The same of the sa	FRESHMEN.	Chapel Services.	Physical Geography.	Algebra.		Physiology.	Labor on Farm. Military Drill.
CONTRACTOR DESCRIPTION OF THE PROPERTY OF THE	Sорномопеs.	Chapel Services.	General Chemistry.	Botany, I, IV, V.	French.	frigonometry.	Free-hand Drawing. Mochanical Drawing, II. Carpentry, III. Military Drill.
The second secon	JUNIORS.	Chapel Services.	German, I, II, IV, V. Kinematics, III.	ure, I,		Agricultural Chemistry, I. (Optional Trigonometry. for V.) Vise work, III. Advanced Chemistry, IV. (Optional for V.) Fiold Book, Roads and Railroads, II.	Laboratory work, I, IV.  Field work and Drawing, II.  Machine Drawing, III.  Translations from French and English Literature, V.  Military Drill.
	Seniors.	8.00 A. M. Chapel Services.	8.15 A. M. Civil Engineering, II.	Stock Breeding and Veterinary Sci-Analytical Geometry, II, III.  ence I.  English and American Literat IV, V.  (r. of T.)	Stereotomy, II. (r. of r.) Sanitary Engineering, II. (r. of r.) Steam Bugineering, II. (v. of r.) Vise work, III. (r. of r.) Steam Engineering, III.	Logic, I, II, III, IV, V.	Laboratory and Farm Practice, I. Designing and Drawing, III. Topography and R. R. work, II. Laboratory work, IV. Translations from Gorman, V. Military Drill
	LOCAL TIME.	8.00 A. M.	8.15 A. M.	9.10 A. M.	10 05 A.M.	11.00 A.M	P. M.

NOTE .- Koman numerals refer to courses as follows: 1, Agriculture; 11, Civil Eng; 111, Mech. Eng.; 1V, Chemistry; V, Science and Lit.

# TABLE OF HOURS—SECOND TERM.

FRESHMEN.	Chapel Services.	Rhetoric. (F of T.)	Book-keeping. (F. of T.) Botany. (L. of T.)	i	Algebra and Geometry.	Labor. Military Drill.
	Chape	Rheto	Book- Botan	French.	Algeb	Labor
Ворномовез.	Chapel Services.	Calculus, II, III. Agricultural Chemistry, I, (Optional Surveying, (L. of r.) I, II, IV, V. for V.) Advanced Chemistry, IV. (Optional for V.)	Qualitative Analysis, I, IV, V.	Qualitative Analysis, I, IV, V. Descriptive Geometry, II, III.	Physics.	Machine Drawing, Designing and Laboratory work and Gardon Practices work, III. Laboratory work, IV. II, (r. of T) Isometric and Gabinet Projection, and Field work, I, II, IV, V. (r. of T.) Perspective, II, III. Designing and Thesis work, II. Laboratory work, IV. Translations from German, V. Military Drill. Military Drill.  Military Military Military Drill.  Military Military Military Drill.  Military Mili
JUNIORS.	Chapel Services.	Calculus, II, III. Agricultural Chemistry, I, (Optional for V.) Advanced Chemistry, IV. (Optional for V.)	German, I, II, IV, V. Mechanics and Machine Design, III.	Applied Mechanics, II. (F of T.) Graphic Statics, II. (L of T.) Zoology and Entomology, I, IV, V.	Zoology and Entomology, I, IV, V. Link and Valve Motions, III.	signing and Laboratory work and Gardon Prac-Mechanical Drawing, Forge wor tico, I.  II, (r. of r.) Esometric and Cabinet Projection, and Field work, I. II, IV, V. (L. of r.) Laboratory work, IV. Translations from French, V. Military Drill.
Seniors.	8.00 A. M. Chapel Services.	Mineralogy and Geology, I, II, IV, Calculus, II, III, V. V.  Agricultural Che for V.) Advanced Chemi for V.)	Mental and Moral Science, I, V. Givil Engineering, II. (F. of T.) 9.10 A. M. Lecture on Designs, Contracts and Specifications, II. (L. of T.) Laboratory work, IV.	Cultivation of Coreals, Care and Feed-Applied Mechanics, II. (F of T.) ing of Animals, etc., I. Graphic Statics, II. (L of T.) Zoology, II. Zoology, II. Steam Engineering & Hydraulics, III.	11.00 A.M. Economy, I, II, III, IV, V.	Machine Drawing, Designing and Thesis work, III. Laboratory work, IV. II, (F. of r.) Chemistry, IV. Designing and Thesis work, II. Franslations from German, V. Military Drill.
Locar TIME.	8.00 A. M.	8.15 A. M.	9.10 A. M.	10.05 A.M.	11.00 A.M.	P. M.

### LABOR.

It is a characteristic feature of the College, that it makes provision for labor, thus combining practice with theory, manual labor with scientific culture.

The maximum time of required labor is three hours a day for five days in the week.

In the lowest class the students are required to work on the farm, and they receive compensation for their labor according to their industry, faithfulness and efficiency, the educational character of their labor being also taken into account. The maximum price paid is ten cents an hour. In arranging for compensated labor, it should be understood that the College does not engage to furnish opportunities for such labor continuously, but rather as the farm and other interests require.

The students of the three upper classes carry on their principal labor in the laboratory, the drawing rooms, the workshops, or in the field, and for it they receive no pecuniary consideration, since their labor is of a purely educational character.

### MILITARY INSTRUCTION.

Thorough instruction in Military Science is given by an officer detailed by the Secretary of War from the active list U. S. Army, and is continued throughout the entire course. All able-bodied male students receive instruction in the school of the soldier, company and battalion drill. Arms and equipments are furnished by the United States Government. The uniform is a cadet gray; the blouse similar to the regulation blouse of an army officer, but with State of Maine buttons, and for officers with chevrons of dark blue; the pants with dark blue stripes, one and one-fourth inches wide, on outside seams; the cap gray, with dark blue bands and brass crossed rifles in front. The uniform is required to be worn during military exercises, and it is recommended that it be worn at recitations and at other class and general College exercises.

### LOCATION.

The College has a pleasant and healthful location, between the villages of Orono and Stillwater, about a mile from each. Stillwater River, a tributary of the Penobscot, flows in front of the buildings,

forming the western boundary of the College farm, and adding much to the beauty of the surrounding scenery.

The Maine Central Railroad, over which trains pass many times each day, has a station at the village of Orono. The College is within nine miles of the city of Bangor, and is consequently easily accessible from all parts of the State.

### FARM AND BUILDINGS.

The College farm contains three hundred and seventy acres of land, of high natural productiveness, and of great diversity of soil, and is therefore well adapted to the experimental purposes of the Institution.

White Hall, the building first erected, affords excellent accommodations for a limited number of students. The lower rooms of this building are appropriated to general and class purposes.

Brick Hall contains forty-eight rooms, and has connected with it a boarding-house for students. With these buildings, the Institution furnishes desirable accommodations for one hundred and twenty-five students.

The Laboratory contains two apparatus rooms, a lecture room, a cabinet, a library and weighing room, a recitation room, and rooms for analytical and other purposes, and is in all respects admirably adapted to the wants of the chemical and mineralogical departments.

The shop built during the summer of 1883, is equipped for instruction in three departments of mechanical work, viz: filing, forging, and working in wood.

### APPARATUS.

The College is furnished with valuable apparatus for the departments of Physical Geography, Chemistry, Physics, Surveying, Civil Engineering and Mechanical Engineering, to which additions are made as the exigencies of the several departments require. Models have been obtained from the United States Patent Office, and others have been purchased, that serve for purposes of instruction.

### LIBRARY.

The library contains nearly five thousand volumes, a large part of which has been obtained through the generosity of the late Ex-Governor Coburn. Valuable additions have also been made to it by other friends of the College, only a small number of the volumes having been purchased with money appropriated by the State. It is earnestly hoped that so important an auxiliary in the education of the student will not be disregarded by the people of the State, and that liberal contributions will be made to the library, not only of agricultural and scientific works, but also of those profitable to the general reader.

### READING ROOM.

The reading room is supplied with a number of valuable newspapers and periodicals. Grateful acknowledgment is herewith made for the following papers, generously sent by the proprietors to the College:

American Cultivator, American Sentinel, Aroostook Republican, Western Rural, Oxford County Record, Minnesota Farmer, Gospel Banner, Home Farm, Kennebec Journal, Lewiston Journal, Maine Farmer, Maine Industrial Journal, New England Farmer, Oxford Democrat, Piscataquis Observer, Portland Transcript, Somerset Reporter, Whig and Courier, (Daily and Weekly), Zion's Herald, Official Gazette U. S. Patent Office, Bangor Daily Commercial, Farmington Chronicle, Phillips Phonograph, Springvale Advocate, Wilford's Microcosm, Ellsworth American, Mount Desert Herald, Maryland Farmer.

The following papers are furnished by subscription, principally by the students:

American Architect and Building News, American Machinist, Boston Journal of Chemistry, Cultivator and Country Gentleman, Harper's Weekly, Maine Mining Journal, Farmer and Dairyman, Colby Echo, Bowdoin Orient, New York Tribune, Scientific American, Scientific American Supplement, Eastern Argus, (furnished by S. W. Gould,) American Naturalist, Blackwood's, Engineering News, Lewiston Daily Journal, Mirror and Farmer, Journal of Education, New York Daily Herald, Prairie Farmer, Sanitary Engineer, Science, Sunday School Times, The Sunday Sun, Union Advocate.

The following are supplied by the College:

American Journal of Science and Art, Popular Science Monthly, National Live Stock Journal, American Agriculturist, Journal Royal Agricultural Society (England), Journal Franklin Institute, Eclectic, Engineering Magazine, Century Magazine, Atlantic Monthly, Harper's Monthly Magazine, North American Review, Education, American Machinist, Science.

### CABINET.

Rooms have been fitted up with cases of minerals and specimens of natural history, and several hundred specimens have been presented to the College. The valuable private cabinets of Prof. C. H. Fernald and Ex-President C. F. Allen are placed in these rooms, and are accessible to the students. All specimens presented will be properly credited and placed on exhibition. Rocks illustrating the different geological formations, and minerals found within the State, are particularly solicited.

### PUBLIC WORSHIP.

All students are required to attend daily prayers at the college, and public worship on the Sabbath at some one of the neighboring churches, unless excused by the President.

### EXPENSES.

Tuition is thirty dollars a year, divided equally between the two terms. The cost of material and repair of tools for the course of instruction in the vise shop, is ten dollars; in the forge shop, nine dollars; in the wood shop, four dollars.

Laboratory expenses are at cost of glass ware broken, injury to apparatus and chemicals used. A deposit of five dollars is required of students entering upon a term's work in Qualitative Analysis, and of seven dollars per term from students in Quantitative Analysis. Room rent is four dollars for the first term and five dollars for the second term of the college year.

Students residing too remote from College to live at home are required to room in the college halls, except special permission to room elsewhere be granted by the President. Students receiving such permission pay room rent and fuel rent as though residing at the College.

Bedding and furniture must be supplied by the students, who also furnish their own lights. Tables, chairs, bedsteads, sinks and husk mattresses can be purchased at the College at moderate rates.

The price of board is two dollars and sixty cents per week; washing averages not more than sixty cents per dozen.

The warming by steam of single rooms (each suitable for two occupants), has averaged for the past six years about eleven dollars a room for each term. The expense of heating recitation rooms and rooms for general purposes has been about two dollars a term for each student, and the incidental expenses, including pay for the services of janitor, pay for bringing mail, for cleaning and renovating rooms, for general repairs, &c., have been about three dollars per term for each student.

From the items given, with an allowance of a few dollars a year for necessary text-books, quite an accurate estimate of needful expenses can be made.

The College term bills are payable, one-half at the commencement, and the remainder at or before the close of each term.

As security for the payment of College bills, a bond of one hundred and fifty dollars with satisfactory securities is required. A blank form of bond will be given with the ticket of admission.

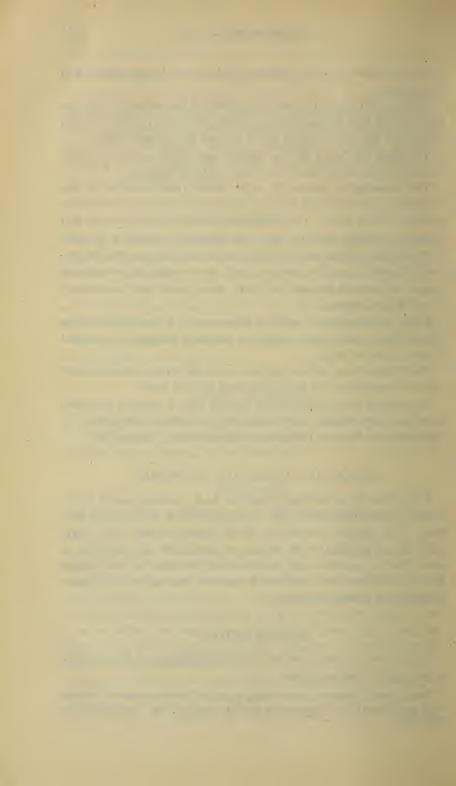
### MEANS OF DEFRAYING EXPENSES.

The terms are so arranged that the long vacation occurs in the winter, that students may have an opportunity to teach during that time. The summer vacation is in the haying season, when farmlabor is most profitable. By availing themselves of the opportunities thus afforded, together with the allowance for labor on the College farm, industrious and economical students can cancel the greater part of their College expenses.

#### SCHOLARSHIPS.

The trustees make provision for the establishing of free scholarships by the following action:

Voted, That any individual or society paying to the Treasurer a sum not less than seven hundred and fifty dollars, shall be entitled to one perpetual free scholarship in the college.



# GRADUATES.

CLASS OF 1872.
Name and Occupation. Residence.
Benjamin F. Gould, C. E., Farmer San Juan, California
George E. Hammond, C. E., Civil EngineerEliot
Edwin J. Haskell, B. S., Silk Manufacturer Saccarappa
Heddle Hilliard, C. E., Civil Engineer, International R. R., Oldtown
Eber D. Thomas, B. S., Civil Engineer Grand Rapids, Mich.
George O. Weston, B. S., FarmerNorridgewock
CLASS OF 1873.
Russell W. Eaton, C. E., Cotton Mill Engineer. Providence, R. I.
George H. Hamlin, C. E., Professor State College, Orono
Fred W. Holt, C. E., Civil Engineer, G. S. R. R., St. George, N. B.
John M. Oak, B. S., Salesman
Charles E. Reed, C. E., Farmer
Frank Lamson Scribner, B. S., Tutor, Girard College, Philadelphia
Harvey B. Thayer, B. S., Druggist
CLASS OF 1874.
William A. Allen, C. E., Civil Engineer, M. C. R. R Portland
Walter Balentine, M. S., Professor of Agriculture,
State College, Oronò
William H. Gerrish, B. S., M. D., Physician Merrimac, Mass
John I. Gurney, B. S., Farmer
David R. Hunter, B. S., Police OfficerOakland, Cal.
Louise H. Ramsdell, B. S., (wife of Milton D. Noyes, Farmer),  Atkinson
Atamour
CLASS OF 1875.
Solomon W. Bates, C. E., Civil Engineer Waterville
Wilbur A. Bumps, C. E., M. D., Physician Dexter
Samuel H. Clapp, C. E., Teacher Danvers, Mass.
Lewis F. Coburn, C. E., Teacher Crescent City, Cal.
Charles W. Colesworthy, B. S Nevada
*Charles F. Durham, C. E., Teacher Crescent City, Cal.
Alfred M. Goodale, B. S., Supt. Cotton Mills Waltham, Mass.

Name and Occupation.	Residence.
Edson F. Hitchings, C. E., Pattern Maker.	Warren, Mass.
Whitman H. Jordan, M. S., Professor Agric	
	State College, Penn.
Edward D. Mayo, M. E., Mill Furnisher and	0 1
	Minneapolis, Minn.
Albert E. Mitchell, M. E., Mechanical Engin	neer Altoona, Penn.
Allen G. Mitchell, C. E., Civil Engineer, Per	
	Cornellsville, Pa.
*Fred W. Moore, B. S., Teacher	
Luther W. Rogers, B. S., Merchant	
Minott W. Sewall, M. E., Mechanical Engin	eerWilmington, Del.
George M. Shaw, C. E., Principal of School	lsOraville, Cal.
Wesley Webb, B. S., Professor of Agricultur	re,
Delaware	College, Newark, Del.
*Edgar A. Work, C. EU	. S. Military Academy
CLASS OF 1876.	
	****
Edmund Abbott, B. S., M. D., Physician	
Charles P. Allen, B. S., Lawyer	
Elbridge H. Beckler, C. E., Ass't Engineer l	
	Bozeman, Mon.
Fred M. Bisbee, C. E., Civil Engineer, Supt	
	R. R. Wichita, Kansas
Edward M. Blanding, B. S., Editor Maine I	
Charles M. Dusin and D. C. Turnbauman	Bangor.
Charles M. Brainard, B. S., Lumberman	
*George H. Buker, B. S., Apothecary	
Florence H. Cowan, B. S., Teacher	
Oliver Crosby, M. E., Proprietor Machine Sl	
Vetal Cyr, B. S., Principal of Madawaska T	
James E. Dike, C. E., U. S. Dep. Surveyor,	Fort Kent
	nd Forks, Dakota Ter.
*Willis O. Dike, B. S	
Horace M. Estabrooke, M. S., Teacher, No.	
Arthur M. Farrington, B. S., Veterinary Ins	
	Station, Garfield, N. J.
George O. Foss, C. E., Civil Engineer M. &	
and the second s	Minneapolis.
	- Postor

Name and Occupation.	Residence.
William T. Haines, B. S., L. L. B., Lawyer	Waterville
Henry F. Hamilton, B. S., D. D. S., Dentist,	
Avenue, Boston; Jersey Sto	
Newall P. Haskell, B. S., Farmer	
Edward S. How, M. E., Book-keeper	
Philip W. Hubbard, B. S., Apothecary	
Samuel M. Jones, M. E., Engineer,	6
	orks, Providence, R. I.
Albert A. Lewis, B. S., Clergyman	
Herbert A. Long, M. E., Farmer Longfe	•
Luther R. Lothrop, C. E., in Surveyor Gener	
	St. Paul, Minn.
Nelson H. Martin, B. S., Teacher	
Charles E. Oak, M. E., Surveyor	
George D. Parks, C. E., Lawyer and Civil E	
Hayward Pierce, B. S., West Waldo Granite	
Frank R. Reed, C. E., Carpenter	
Henry J. Reynolds, B. S., Druggist	-
Charles W. Rogers, M. E., Machinist	
William L. Stevens, M. E., Grain Dealer	
John H. Williams, B. S., Gov't Surveyor	
CLASS OF 1877.	
Alvah D. Blackington, C. E., Civil Engineer	Dunmore, Pa.
Robert B. Burns, C. E., in Sur. Gen. office.	Helena, Mon.
Eugene H. Dakin, B. S., Financial Agent, In	ndustrial Journal,
	Bangor
Edward F. Danforth, B. S., Lawyer	Skowhegan
Augustus J. Elkins, B. M. E., Draughtsman	Fergus Falls, Minn.
Alicia T. Emery, B. S., Teacher	Orono
Samuel W. Gould, B. S., Lawyer	Skowhegan
* Joseph C. Lunt, B. C. E., Civil Engineer,	Mex. C. R. R.,
1	El Paso, Texas
Fred F. Phillips, B. S., Lawyer	Bangor
*Samuel Shaw, B. M. E., Architectural Draug	
Frank P. Stone, B. S., Farmer	
Thomas J. Stevens, B. M. E., Apothecary	
George E. Sturgis, B. C. E., Apothecary	Oregon

<sup>\*</sup> Deceased.

Name and Occupation.	Residence.
Charles E. Towne, B. C. E., Govern	ment Surveyor,
	Helena, Montana
James W. Weeks, B. M. E., Draught	
Nellie E. Weeks, B. S., (Mrs. Llewe	
Ivan E. Webster, B. S., Lumberman	
Title 13. Trosseer, 2. Si, 13timoer mitti	······································
CLASS OF	1878.
Emma Brown, B. S., Teacher, (Mrs.	
Andrew J. Caldwell, B. M. E., Mech	_
Cecil C. Chamberlain, B. S., Mercha	
George E. Fernald, B. C. E., Commer	
James Heald, B. S., City Water Wo	
John Locke, B. S	
Frank J. Oakes, B. C. E., Draughtsn	
John C. Patterson, B. C. E., Civil En	ngineer, Minn. & St. L. R. R.,
	Minneapolis, Minn.
Winfield E. Tripp, B. C. E. Commer-	cial Salesman Madison, Wis.
Edward C. Walker, B. S., Lawyer	Lovell
Otis C. Webster, B. S., Druggist	Augusta
CLASS O	F 1879.
Harry P. Bean, C. E., Civil Engineer	. C. M. & St. Paul R. R.,
11uii 1 1 20uu, 0 1 21, 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Tama City, Iowa
Edward J. Blake, C. E., Ass't Engin	
Daywill b. Diano, C. 2., 1100 v 25ag.	Peoria, Ill.
Simon P. Crosby, B. S., Lawyer	
John D. Cutter, B. S., Physician, 33	
John D. Custon, B. S., Thysicam, S.	Chicago, Ill.
Wilbur F. Decker, B. M. E., Instruc	
	University, Minneapolis, Minn.
David A. Decrow, B. C. E., Draught	
David A. Decrow, B. C. E., Draught	Lockport, New York
Willis E. Ferguson, B. S., Farmer	
Charles W. Gibbs, C. E., Civil En	
Amis M Could D C Marshay (M	Minneapolis, Minn.
Annie M. Gould, B. S., Teacher, (M	
NEW NETTH DOMESTIC	Oldtown.
Nellie M. Holt, B. S., Teacher,	Orono.

Name and Occupation.	Residence.
Frank E. Kidder, C. E., Architect	
Mark D. Libby, B. C. E., Civil Engineer	. Santa Fe, N. Mexico.
Charles S. Loring, B. M. E., Machinist, C. &	& S. Water Motor Co.,
	Auburn.
George P. Merrill, M. S., Ass't, Nat. Museu	m, Washington, D. C.
John W. Meserve, B. M. E., Mech. Engineer,	Cambridgeport, Mass.
Arthur L. Moore, B. S., Farmer	Limerick
Charles A. Morse, B. C. E., Ass't Div. Engi	ineer, Mex. C. R. R.,
	El Paso, Texas
Fred D. Potter, B. M. E., Draughtsman, Edi	son Electric Light Co.,
	N. Y.
Alton J. Shaw, B. M. E	Auburn
Percia A. Vinal, M. S., (Mrs. Albert White)	
George O. Warren, B. S., Farmer	
Herbert Webster, B. S., Express Messenger,	v e
	or and St. John, N. B.
	,
CLASS OF 1880.	
Horace W. Atwood, B. S., Veterinary Surge James M. Bartlett, M. S., Analytical Chemis Albert H. Brown, B. S., Coal Merchant Marcia Davis, B. S., Clerk, Office Registry of We	st, State College, Penn. Oldtown
Fred B. Elliott, B. S., Farmer	
Sarah P. Farrington, B. S., (Mrs. George P.	
	Washington, D. C.
Charles W. Fernald, B. S., Merchant	0 ,
Fred W. Fickett, B. S., U. S. Signal Service	
George W. Lufkin, B. C. E., Civil Engineer	
, , , , , , , , , , , , , , , , , , , ,	St. Paul, Minn.
Frank A. Mansfield, M. S., Clergyman	,
Annie A. Matthews, B. S., Teacher	
Henry W. Murray, B. C. E., Teacher	
Franklin R. Patten, B. C. E., Sanitary Engin	· ·
The state of the s	Minneapolis, Minn.
Charles T. Pease, B. S., Civil Engineer	
James F. Purington, B. S., Farmer	•
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# CLASS OF 1881.

Name and Occupation.	Residence.
Henry H. Andrews, B. M. E., Lumber Manuf .	Hampstead, Va.
Henry W. Brown, B. S., Student of Art	New Haven, Conn.
Clara L. Buck, B. S., Teacher	Oldtown
Fannie E. Colburn, B. S., Teacher	Auburn
Edward H. Farrington, B. S., Chemist,	
Agricultural Experiment Station, I	New Haven, Conn.
Oliver C. Farrington, B. S., Teacher	Cape Elizabeth
Charles H. Fogg, B. C. E., Div. Supt., Penn. R	. R.,
	Greensburg, Pa.
Aldana T. Ingalls, B. C. E., Division Engineer,	C. & C. M. R. R.
	Wilmington, Ohio
Robert John Johnson, B. C. E., Civil Engine	er,
ı	Minneapolis, Minn.
Clara A. Libby, B. S., Teacher	Augusta
Horace F. McIntyre, B. M. E., Mill Business	Waldoborough
Charles L. Moor, B. C. E. Law Student	Portland
*Benjamin F. Murray, B. C. E	Stillwater
Edwin W. Osborne, B. C. E., N. Pacific R. R	., Brainard, Minn.
Oscar L. Pease, B. S., U. S. Signal Service	Phœnix, Arizona
Harold M. Plaisted, B. M. E., M. E. (Stevens In	nstitute) Draughts-
man, Chi. Mil. & St. Paul R. R	. Milwaukee, Wis.
Alice I. Ring, B. S	Orono
Mary L. Ring, B. S., Teacher	
*Roscoe L. Smith, B. S., Farmer	
George Washington Sturtevant, B. C. E., Civil I	Engineer,
g	St. Cloud, Minn.
Frank S. Wade, B. S., Physician, Hahnemann M	ledical College and
Hospital	Chicago, Ill.
Walter A. White, B. C. E., Law Student	Ann Arbor, Mich.
John B. Wilson. B. S., Medical Student	Eureka, Kan.
Levi A. Wyman, B. C. E., Farmer	Trenton

<sup>\*</sup>Deceased.

# CLASS OF 1882.

Name and Communica	Residence.
Name and Occupation. Charles S. Bickford, B. S., Book-Keeper	
Jacob L. Boynton, B. S., 11 Boylston Place	
Charles W. Brown, B. M. E., Draughtsman,	
Charles W. Brown, B. M. E., Draughtsman,	
Stephen J. Buzzell, B. C. E., Book-Keeper	Washington, D. C.
-	
Oscar H. Dunton, B. M. E., Draughtsman.	
Walter Flint, B. M. E., Instructor, State Coll	
George R. Fuller, B. S., Teacher	
Charles C. Garland, B. S., 211 <sup>1</sup> / <sub>2</sub> Nicollet Avenu	_
Joseph F. Gould, B. S., Teacher and Law St	· · · · · · · · · · · · · · · · · · ·
Thomas W. Hine, B. S., Lawyer,	
Will R. Howard, B. S., Instructor Math. & M	
	No. Granville, N. Y.
Alonzo L. Hurd, B. S., Rockford Watch Co.	1
Alfred J. Keith, B. C. E., Ass't Engineer wit	
	Newport, R. I.
Frank I. Kimball, B. C. E. Civil Engineer, P.	
T	Greensburg, Pa.
James H. Patten, B. S., Medical Student, Un	
	New York
Frederic M. Reed, B. M. E., Draughtsman.	
Gleason C. Snow, B. S., Farmer	
Avery P. Starrett, B. S., Farmer	
Frank H. Todd, B. C. E., Civil Engineer,	
Eben C. Webster, B. S., Lumber Manufactur	
Willard A. Wight, B. C. E., Supt. Gas Wor	
Daniel C. Woodward, B. M. E., Machinist	Winthrop.
OT 100 OF 1000	
CLASS OF 1883.	•
James H. Cain, B. S	Lewiston
Jonathan V. Cilley, B. C. E., Railroad Engin	eer,
Buenos Ay	yres, Arg. Rep., S. A.
Frank E. Emery, B. S., 1st. Ass't, Houghton	n Farm,
Mountainvil	lle, Orange Co., N. Y.
Arthur L. Fernald, B. S., Commercial Salesn	nanWaterloo, Iowa
Bartholomew P. Kelleher, B. S., Farmer	Orono

Name and Occupation. Residence.	
Lucius H. Merrill, B. S., Ass't, Nat. Museum, Washington, D. C.	
Jennie C. Michaels, B. S., Teacher Stillwater	
Charles W. Mullen, B. C. E., Civil Engineer, Lake Megantic R. R.	
Oldtown	
Truman M. Patten, B. C. E Hermon	
Harry W. Powers, B. S Orono	
Charles E. Putnam, B. C. E., Civil Engineer Boston, Mass	
Lewis Robinson, Jr., B. M. E., Medical Student Hampder	1
George A. Sutton, B. C. E., Civil EngineerOrono	)
Levi W. Taylor, B. S., Principal Abbott Square Grammar School	,
Bango	,,
CLASS OF 1884.	
George H. Allan, B. S., Assistant, State Reform School,	
Cape Elizabeth	1
* Will H. Burleigh, B. C. E Vassalbord	)
Mary F. Conroy, B. S., Teacher	ł
Leslie W. Cutter, B. C. E	ľ
Hattie C. Fernald, B. S Orong	
Elmer E. Hatch, B. S., Teacher So. Elliot	t
John E. Hill, B. C. E., U. S. Signal Service Washington, D. C.	
Joseph G. Kelley, B. C. E Orong	
Edwin F. Ladd, B. S., Ass't Chemist, Experiment Station,	
Geneva, N. Y.	
Clarence S. Lunt, B. C. E., Reporter on Whig and Courier, Bangor	
Fred L. Stevens, B. S., Principal of High School Manchester	
William Webber, B. M. E., DraughtsmanGuilford	

<sup>\*</sup> Deceased.

### OFFICERS OF THE ASSOCIATE ALUMNI.

#### PRESIDENT.

PROF. G. H. HAMLIN, Orono.

#### SECRETARY.

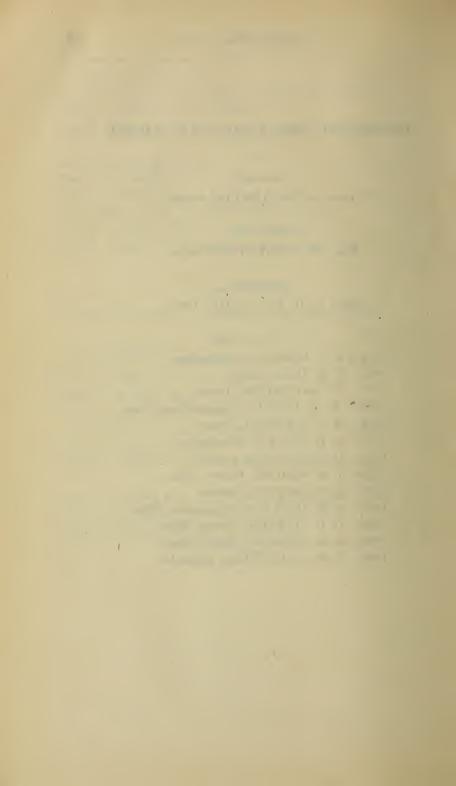
PROF. W. BALENTINE, Orono.

#### TREASURER.

PROF. C. H. BENJAMIN, Orono.

#### CLASS SECRETARIES.

- 1872. E. J. HASKELL, Saccarappa.
- 1873. J. M. OAK, Bangor.
- 1874. W. BALENTINE, Orono.
- 1875. W. H. JORDAN, State College, Penn.
- 1876. N. P. HASKELL, Orono.
- 1877. S. W. GOULD, Skowhegan.
- 1878. C. E. WALKER, Lovell.
- 1879. F. E. KIDDER, Boston, Mass.
- 1880. A. H. BROWN, Oldtown.
- 1881. A. T. INGALLS, Wilmington, Ohio.
- 1882. O. H. DUNTON, Boston, Mass.
- 1883. C. E. PUTNAM, Boston, Mass.
- 1884. G. H. ALLAN, Cape Elizabeth.



# NON-GRADUATES.

Average period of attendance, one and a half years.

Present residence not being known, the former residence is given.

Special students are marked in the classes with which they principally recited.

[Corrections for a revised list are solicited.]

### CLASS OF 1872.

Name and Occupation.	Residence.
John T. Bowler, Register of Deeds	Bangor
William H. Cary, Jr	St. Paul, Minn.
Edward F. Fisher, Trader, Pressed Hay	Bangor
William H. George, Presbyterian Clergyman	Topeka, Kansas
William L. Harlow, Farmer	Buckfield
George L. Macomber	Durham
Charles C. NortonBuff	
William B. Oleson, Clergyman	Portland
Frank W. Rollins, Book-Keeper	Cloquete, Minn.
Oren S. Sargent, Physician	Lawrence, Mass.
* Marcus P. Shorey	
Benjamin F. Watson, Farmer	
CLASS OF 1873.	
William H. Claffin, Clerk or Merchant	Boston
Joseph E. P. Clark, Book Business	Minneapolis, Minn.
* John Jackson	
Samuel Lane, Insurance Agent	Houlton
William F. Lovejoy, Book-Keeper	Winn
Thomas P. Pease	

Name and Occupation. Residence.	
Clarence Pullen, Surveyor General of New Mexico,	
Los Vegas, New Mex	cico
Frederic A. Ransom Augu	sta
2.49	~ 004
CLASS OF 1874.	
Frank P. BurleighSpringfi	eld
* Mark E. Burnham Garla	and
Louville Curtis Bowdoinh	am
Roland Curtis, Physician Bowdoinh	am
Samuel C. MooreCherryfi	eld
Charles F. Osgood, FarmerGarla	and
* William H. Reed Springfi	
George I. Trickey, LawyerCaril	oou
Manly H. Whitehouse Orring	ton
Edward R. Wingate, Lumber Business Cherryfi	eld
William I. Wood, Lawyer Corin	ına
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CLASS OF 1875.	
Gustavus Bellows, Farmer; Specialty, FruitFreed	om
Leander H. Blossom, FarmerTur	ner
John H. Carver, Merchant	iss.
William B. Dole, Mechanic Ban	gor
George N. Gage, Physician E. Washington, N.	H.
Benson H. Ham, MerchantCharles	ton
Alton A. Jackson, PhysicianE. Jeffers	son
Manley Jackson, Organ and Sewing Machine Business Jeffers	son
Freeland Jones, Merchant and SurveyorCaril	oou
Ora Oak, Califor	
Sidney S. Soule, Farmer Freep	
Louis C. Southard, LawyerBoston, Ma	
George W. Spratt, MerchantBan	_
Charles H. Spring, Wool Grower. Buenos Ayres, Arg. Rep., S.	A.

<sup>\*</sup>Deceased.

### CLASS OF 1876.

Name and Occupation. Residence.
Francis H. Bacon, Architect 98 Washington Street, Boston, Mass.
Russell A. Carver Dixfield
Frank P. Gurney, FarmerDover, Dakota
Frank A. Hazeltine, FarmerDexter
Eugene HopkinsOldtown
James W. Linnell, Farmer Exeter
George J. Moody, Lawyer Forest City, Dakota
Webster Mudgett
Edward B. Pillsbury, Telegrapher and Electrician Boston, Mass.
Randall H. Rines, MerchantPortland
Walter F. Robinson, Surveyor and Farmer
Edward C. Shaw, in employ of Am. Watch Co Waltham, Mass.
Frank E. Southard, Law Student Augusta
Frank P. Whitaker, Physician
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CLASS OF 1877.
Charles F. AndrewsBiddeford
Fred S. Bunker, Student, Harvard College Cambridge, Mass.
* Edson C. Chase Stillwater
William W. Dow, PrinterProvidence, R. I.
James T. Emery Stillwater
Charles M. FreemanPortland
Frank H. Goud, Clerk Fort Fairfield
Austin I. Harvey, Physician
Menzies F. Herring, Editor and PublisherDexter
Ardean LovejoyOrono
Fred B. Mallet, Lumbering Business Minneapolis, Minn.
Fred L. Partridge Stockton
Fred H. PullenFoxcroft
* Frank E. ReedSpringfield
Woodbury D. Roberts, MerchantCheney, Wyoming
Thomas B. Seavey, Clerk
Henry C. Townsend, FarmerFort Fairfield
Clara E. Webb, Teacher

<sup>\*</sup> Deceased.

Name and Occupation.	Residence.
Fred S. Wiggin, Farmer	Presque Isle
William B. Whitney	
OT 100 OT 1000	
CLASS OF 1878.	
Charles H. Benjamin, Professor Mech. Eng., M.	
Eugene M. Berry	Sumner
* Nathaniel A. Crocker	W. Enfield
Charles C. Elwell, Civil Engineer	Boston, Mass.
Howard H. Hartwell	Vinalhaven
John E. Haynes, Jeweller	Oldtown
Fred H. Hinckley, Clerk in U. S. Land Office	Eureka, Nev.
Richard S. Howe, Hotel Clerk	Fryeburg
Carl S. Jameson, Boot and Shoe Dealer	Providence, R. I.
William S. Jameson, Dealer in Sugar Machinery,	Guadalajara, Mex.
Edgar H. Lancaster, Mechanic in R. R. Shop.	Oldtown
* Alvra W. Leathers	Dover
James Lunt	Bangor
Herbert A. Mallett, Lumberman	Stillwater, Minn.
Silas N. Miller, Prospecting for Gold and Silver,	Fairplay, Colorado
Frank J. Perkins, Dry Goods Dealer	Oldtown
Charles F. Plumley, Merchant	Lincoln
John O. Richardson, Trader, Paints and Oil	
A. Judson Small	No. Lubec
Albert H. Stewart, Piano Regulator	
Edson Warriner, Watchmaker and Jeweller	
Erastus G. Weeks, Merchant	Jefferson
·	
CLASS OF 1879.	
Daniel Allison	
Arthur P. Brown, Mechanic	
Benjamin V. Carver, Machinist	
Byron H. Cochrane	
Fred A. Colburn, Clerk and Scaler	,
James W. Cousens, Teacher	
John A. Curtis, U. S. Deputy Surveyor	Laramie, Wyoming

Name and Occupation.	Residence.
George A. Dustin, Machinist and Trader	Dexter
Loomis F. Goodale, Civil Eng., Can. Pac. R.	R.,
	Winnipeg, Manitoba
Edwin A. Hawes, Mechanic	Ontario, Cal.
* Edwin C. Johnson	Gorham
Oliver S. Jones, Farmer	Corinna
Albert Y. Merrill, Lawyer, Judge of Probate	Aitkin, Minn.
Asa C. Morton	Bangor
Harry W. Peakes, Merchant	
David S. Plummer, Book-Keeper	Boston, Mass.
* Eugene G. Smith	Richmond
William N. Titus, Lawyer, Judge Mun. Court	
Howard E. Webster, Lumberman	Orono
Arthur L. Wellington, Shipping Agent	
Charles M. Wilson,	
·	,
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CLASS OF 1880.	
Charles M. Allen, Teacher	Kingston, Penn.
Edward N. Atwood, Asst. Supt., Ker. Oil Wo	orksPortland
Granville Austin, Clerk	Boston, Mass.
Sylvester A. Brown, Clerk	Boston, Mass.
Ada M. L. Buswell, Teacher	Stetson
Charles E. Cheney, Farmer	W. Scarboro'
Woodbury F. Cleveland, Physician	Winterport
Samuel H. Dyer	Yarmouth
Osgood E. Fuller, Druggist	
Harry H. Goodwin, Lawyer	
John B. Horton, Book-Keeper	
Daniel S. Jones, Watchmaker and Jeweller	_
Prescott Keyes, Jr., Farmer	
*Charles W. Nash	
Willis L. Oak, Clerk	
Fred W. Powers, Farmer and Teacher	_
Emily Ramsdell, Teacher	
· · · · · · · · · · · · · · · · · · ·	

	Residence.
Mortier C. Randall	Stillwater
William J. Rich, Asst. to Prof. R. H. Richards,	Ins. Tech.,
	Boston, Mass.
Charles S. Simpson, Civil Engineer and County	Surveyor,
	Florence, Wis.
Frank A. Spratt	Corinth
Daniel Webster, Clerk, Am. Exp. Co	Bangor
CLASS OF 1881.	
Henry W. Adams, Lumberman	Wisconsin
*Lorin T. Boynton	
Charles P. Chandler, Machinist	New Gloucester
Elmer C. Chapin, Commercial Traveller	Bangor
*Frank P. Fessenden	
Archy S. Gee, Tinman	
George W. Holmes, Merchant	
John F. Horne, Shoe Manufacturer	
Benjamin Johnson	
Edward C. Luques	Biddeford
Charles S. Macomber, Lawyer	Carrollton, Iowa
Charles I. D. Nichols, Farmer	Hollis
Martin Nowland, Farmer	Ashland
Charles C. Ross, Runner	St. Stephens, N. B.
Clara Southard (Mrs. Hammond)	Lincoln Center
Charles P. Tidd, Tel. Operator	. Higbee, Missouri
Harry P. Tidd	. Wingleton, Mich.
William R. Tilden, Workman in Shoe Factory .	Campello, Mass.
William A. Vinal, Scaler	Orono
Willliam G. Wales, Farmer	Iowa
Frank B. Weeks, Government Quartermaster	San Francisco, Cal.
Flora Welch, in Training School for Nurses, Cit	y Hospital,
	Boston, Mass.
George H. Wilson, Clerk, Gov. Storehouse	Maricopa, Arizona

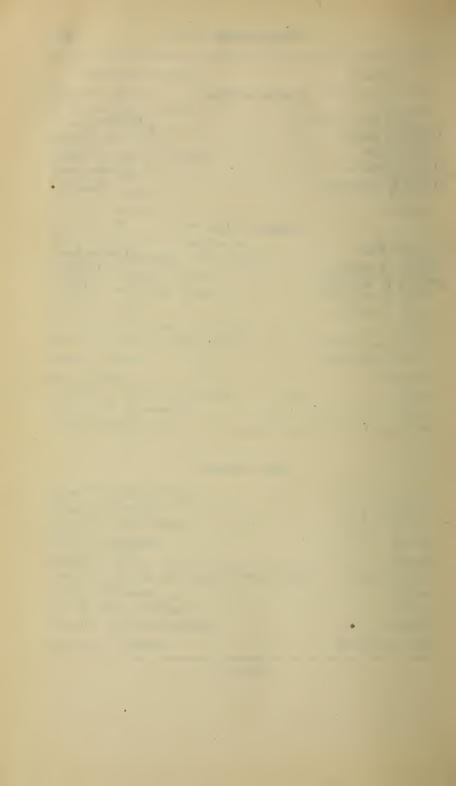
# CLASS OF 1882.

Name and Occupation.	Residence.
Joseph B. Bartlett, Fruit Grower	San Gabriel, California
Charles C. Dunn, Farmer	
Charles W. Fenlason	
John I. Greenlaw, Merchant	
William H. Hatch	
Wesley J. Jameson	
Frederick A. Kenniston, Clerk	
Frederick O. Kent	
Walter H. Nason, Medical Student	
Atta L. Nutter, Teacher	
Parker J. Page, Law Student	
Harry K. Poole	
Louis C. Tilley, Farmer	
Zoulo or zmoj, zwimoż	
CLASS OF 188	
George R. Currier, Teacher	E. Wilton
Arthur T. Drummond, Farmer	
William E. Emery, Medical Student	New York City
Norman F. Kelsea	Brockton, Mass.
Edwin P. Kendall, Farmer and Miller	Bowdoinham
Henry W. Longfellow, Clerk	
Charles S. Murray	
George A. Rich, Student in University	
Everett F. Rich, Clerk	
Ralph Starbird, Manufacturer	Boston, Mass.
Ralph R. Ulmer, Law Student	
Frank C. Webster, Clerk, Am. Exp. Co	
Frank G. Webster, Clerk	
Lewis H. White	
CLASS OF 188	34.
Edward S. Abbott, Instructor in Physic	College, Chicago, Ill.
Edward M. Bailey, Mechanic	

Name and Occupation.	Residence.
Joseph B. Bartlett	Nottingham, N. H.
William A. Berry, Sailor	
James A. Dunning	
Freeland Ellis, Clerk	
Eugene L. Folsom, Machinist	
Evie M. Hamblen	
Robert S. Leighton	
*Gilbert Longfellow, Jr	
Cephas R. Moore, Trader	
William Morey, Jr., Draughtsman	
William R. Pattangall, Law Student	_
Robert C. Patterson, Surveyor	
Charles S. Pendleton, Farmer	
Herbert L. Rich	Attleboro', Mass.
Flora M. Ricker (Mrs. P. J. Page)	Orono
Warren J. Ridley, Conductor Street R. R	. South Boston, Mass.
Elmer A. Savage	Minneapolis, Minn.
Mertie Sawyer	Hampden
Charles F. Smith, Law Student	
* Horace G. Trueworthy	Orono
Jotham Whipple, Jr	Solon
CLASS OF 1885.	
CHASS OF 1003.	
James W. Bishop, Farmer	Milo
Frederick H. Butler	
Harry W. Davis, Banker	Buxton, Dakota
Fred W. Dickerson	
Samuel W. Hill	
Dennis D. Merrill, Ass't, State Reform School	
William Philbrook	
Carl H. Prince, Farmer	
Elisha C. Vose, Law Student	
Charles S. Williams	Monhegan Island

### CLASS OF 1886.

Name and Occupation.	Residence.
Eugene C. Bartlett	Orono
John I. Chase	
Harry E. Powers	Bowdoinham
Harold E. Trueworthy	Houlton
CLASS OF 1887	7.
John W. Allen	Presque Isle
James S. Kennedy	Ludlow
William L. Perham	





### CALENDAR.

- 1885—Feb. 10. Tuesday, Second Term commences.
  - June 18, 19. Thursday and Friday, Examinations.
    - " 20. Saturday, Prize Declamations by Sophomores.
    - " 21. Sunday, Baccalaureate Address.
    - " 22. Monday, Prize Essays by Juniors.
      - " 24. Wednesday, Commencement.
    - " 25. Thursday, Examination of Candidates for Admission.

Vacation of five weeks.

Aug. 4. Tuesday, Examination of Candidates for Admission.

First Term commences.

Nov. 23, 24. Monday and Tuesday, Examinations. Vacation of eleven weeks.

1886-Feb. 9. Tuesday, Second Term commences.

